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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,642	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,6-14,16,18-34,43-50,53,55,57-68,71,75-77 and 84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-14,16,18-34,43-50,53,55,57-68,71,75-77 and 84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 20 April 2005 have been fully considered but they are not persuasive.

The applicants argue that *Ikeda* does not show the liquid crystal between the light shielding portion and the channel forming region. This is not persuasive. The device of *Ikeda* in view of *Fujikawa* has the light shielding portion on the color filter substrate and the channel forming region on the TFT substrate, with the liquid crystal between them.

The applicants argue that 8G in Fig. 8 of *Ukai* is a gate electrode rather than a gate wiring. This is not persuasive (a gate electrode is part of a gate wiring).

The applicants argue that *Fujioka* fails to disclose a portable telephone. This is not persuasive. The examiner properly took official notice in the previous office action that the use of LCDs as displays in portable telephones is well-known and would have been obvious to one of ordinary skill in the art at the time of the invention; the applicant has not traversed this taking of official notice.

The applicants argue that the combination of *Fujioka* or *Yokomizu* with *Ichikawa* is improper, because the former have color filters while the latter does not. This is not persuasive, as the teaching applied from *Ichikawa* has to do with what is covered by a light shielding film, not what the light shielding film is made of.

Claim Objections

2. Claim 84 is objected to because of the following informalities: claim 84 should recite "A portable telephone according to claim 76" rather than "An electrical equipment according to claim 76". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 6, 8-11, 13, 14, 16, 18, 20-23, 25-27, 29-32, 34, 67, 68, 76, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463.

In discussing the Eleventh Embodiment [col. 28, line 56ff], *Ikeda* discloses that any of the "configurations shown in the first to seventh embodiments may be applied as a configuration of the TFT substrate" matched to the color filter [CF] substrate disclosed in the eleventh embodiment [which is shown in Fig. 40A]. *Ikeda* therefore gives explicit fruition to using the color filter substrate shown in Fig. 40A with the TFT substrate shown in Figs. 3-4 (first embodiment), for instance.

Ikeda discloses [see Figs. 40A, and Figs. 3-4 where the color filter substrate 40 has been replaced with the color filter substrate of Fig. 40A] an electro-optical device having a display portion comprising a pixel electrode [32] provided over a substrate and

a thin film transistor [37] formed over a substrate [31]; a light shielding portion [172] consisting essentially of a first colored layer [173B] and a second colored layer [173R]; wherein the light shielding portion is provided under an opposing substrate [171]; and wherein a liquid crystal layer is between said light shielding portion and the regions on the other substrate.

Ikeda discloses that the black matrix in Figs. 3-4 (the equivalent of the light shielding portion in Fig. 40A] is disposed over the drain and gate bus lines, the auxiliary capacitance electrodes, and the TFTs on the TFT substrate [col. 7, lines 30-33], which suggests that the light shielding portion shown in Fig. 40A would be similarly disposed. However, *Ikeda* does not explicitly disclose where (in plane view) the light shielding portion is disposed when combining the CF of Fig. 40A with the TFT substrate of Fig. 3.

Fujikawa discloses forming the light shielding portion [black matrix] overlapping with the channel forming region of the switching element (thin film transistor) and covering the regions between adjacent pixel electrodes [see Fig. 4]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so with the light shielding portion shown in Fig. 40A placed on the TFT substrate shown in Fig. 3, motivated by *Fujikawa*'s teaching that the function of a black matrix is to prevent "a decrease in display contrast due to back light transmission between a transparent pixel electrode of indium tin oxide (ITO) and its circumferential wiring and the like [that is, between adjacent pixel electrodes], and a decrease in display quality due to leakage current excited by incident light at the channel region of a thin film transistor" [col. 1, lines 24-29].

The electro-optical device is a transmission type LCD [col. 6, line 39 – col. 7, line 43 – both pixel and opposing electrode are transparent, both substrates are glass, and there are polarizers on both substrates, hence this is a transmission LCD as opposed to a reflection LCD] in which a (first or second) pixel electrode [32], electrically connected with the switching element, is made of a transparent conductive film [ITO, col. 7, line 7].

In the device of *Ikeda* in view of *Fujikawa*, the liquid crystal [49] is positioned between the light shielding portion on the color filter substrate and the channel forming region as recited in claims 1 and 8, and between the light shielding portion and said regions (between adjacent first and second pixel electrodes) as recited in claim 13. Claims 1, 8, and 13 are therefore unpatentable.

The first pixel electrode is connected to the switching element (as amended to claim 21). There are a plurality of pixel openings [see Fig. 40A], with one of a part extended from the first colored layer, a part extended from the second colored layer, and a third colored layer, provided on each of said plurality of pixel openings. The said light shielding portion does not include a third colored layer [173G], so claims 21, 25, 29, and 67 are also unpatentable.

Claim 76 is analogous to claim 67 but recites "a portable telephone having a display portion". As in the previous Office Action, the examiner takes official notice that the use of LCDs as displays in portable telephones is well-known; it would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by it being useful in a phone. Claim 76 is therefore unpatentable.

As noted above, a switching element [the TFT 37] is connected [col. 7, lines 9-11] to said (first) pixel electrode [32], so claims 16, 20, 31, and 34 are also unpatentable.

The first colored layer is blue [173B], the second red [173R], so claims 2, 9, 10, and 14 are unpatentable.

The third colored layer is green [173G], so claims 22, 26, 30, 68, and 77 are also unpatentable.

The electro-optical device is a transmission type LCD [col. 6, line 39 – col. 7, line 43 – both pixel and opposing electrode are transparent, both substrates are glass, and there are polarizers on both substrates, hence this is a transmission LCD as opposed to a reflection LCD] in which a pixel electrode [32] is made of a transparent conductive film [ITO, col. 7, line 7], so claims 6, 11, 18, 23, 27, and 32 are also unpatentable.

5. Claims 7, 12, 19, 24, 28, 33, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463 as applied to claims 1, 8, 13, 21, 25, 29, and 67 above, and further in view of *Ogawa et al.,* U.S. Patent No. 5,373,377.

Ikeda and *Fujikawa* do not disclose that the electro-optical device is a personal computer, for instance. *Ogawa* does disclose an analogous liquid crystal display electro-optical device which is a personal computer. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the LCD of *Ikeda* in view of *Fujikawa* into a personal computer (making the personal computer the electro-optical device), motivated by *Ogawa*'s teaching that "liquid crystal displays ... weigh

light, permit a decrease in thickness, and consume only a small amount of electric power, and owing to these benefits, have found utility in such applications as ... lap-top personal computers" [col. 1, lines 12-17]. Claims 7, 12, 19, 24, 28, 33, and 71 are therefore unpatentable.

6. Claims 43-48, 75, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463 as applied to claims 1, 8, 13, 21, 25, 29, 67, and 76 above, and further in view of *Ukai et al.,* U.S. Patent No. 5,576,858.

Ikeda does not disclose the additional limitations of dependent claims 43-48, namely a gate-on-top TFT, but rather discloses a gate-on-bottom TFT. *Ukai* discloses [see Fig. 8] an analogous LCD with a gate-on-top TFT: source line [8S] connected with the switching element [8SC, etc.] electrically; an insulating film [15] over the source line; a gate wiring [8G] over said insulating film and over said source line; and liquid crystal over the gate wiring. The gate-on-top TFT is an art-recognized equivalent to the gate-on-bottom TFT, as evidenced by *Ukai's* discussion [see Figs. 8 and 9, col. 9, lines 8-45]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such a gate-on-top TFT structure in the device of *Ikeda*, motivated by the two being art-recognized equivalents, as evidenced by *Ukai*. Claims 43-48, 75, and 84 are therefore unpatentable.

7. Claims 49, 50, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S.

Patent No. 6,002,463 as applied above, and further in view of *Kaneko et al.,* U.S. Patent No. 5,637,380.

As discussed above, *Ikeda* in view of *Fujikawa* discloses an electro-optical device comprising a first colored layer, a second colored layer, and a third colored layer, with the light shielding portion comprising the first and second colored layers, and the light shielding portion does not include the third colored layer, wherein the electro-optical device is a transmissive liquid crystal display device in which a pixel electrode is made of a transparent conductive film (these limitations are all essentially recited by claims 23 and 27, for instance).

Ikeda in view of *Fujikawa* does not explicitly disclose using a leveling film over the light shielding portion. *Kaneko* discloses such a leveling film [3] to be used in an analogous situation. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so here, motivated by *Kaneko's* teachings that it acts as a protective film, removes non-uniformity, and improves the display quality. Claim 49 is therefore unpatentable.

Ikeda in view of *Fujikawa* discloses that the first, second, and third colors are blue, red, and green, so claim 50 is also unpatentable. It also discloses that the liquid crystal is between the light shielding portion and a channel forming region of a TFT, so claim 55 is also unpatentable.

8. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463 in view of

Kaneko et al., U.S. Patent No. 5,637,380 as applied above, and further in view of *Ogawa et al.,* U.S. Patent No. 5,373,377.

Ikeda and *Fujikawa* do not disclose that the electro-optical device is a personal computer, for instance. *Ogawa* does disclose an analogous liquid crystal display electro-optical device which is a personal computer. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the LCD of *Ikeda* in view of *Fujikawa* into a personal computer (making the personal computer the electro-optical device), motivated by *Ogawa*'s teaching that "liquid crystal displays ... weigh light, permit a decrease in thickness, and consume only a small amount of electric power, and owing to these benefits, have found utility in such applications as ... lap-top personal computers" [col. 1, lines 12-17]. Claim 53 is therefore unpatentable.

9. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463 in view of *Kaneko et al.,* U.S. Patent No. 5,637,380 as applied above, and further in view of *Ukai et al.,* U.S. Patent No. 5,576,858.

Ikeda does not disclose the additional limitations of dependent claim 57, namely a gate-on-top TFT, but rather discloses a gate-on-bottom TFT. *Ukai* discloses [see Fig. 8] an analogous LCD with a gate-on-top TFT: source line [8S] connected with the switching element [8SC, etc.] electrically; an insulating film [15] over the source line; a gate wiring [8G] over said insulating film and over said source line; and liquid crystal over the gate wiring. The gate-on-top TFT is an art-recognized equivalent to the gate-on-bottom TFT, as evidenced by *Ukai's* discussion [see Figs. 8 and 9, col. 9, lines 8-45].

It would have been obvious to one of ordinary skill in the art at the time of the invention to use such a gate-on-top TFT structure in the device of *Ikeda*, motivated by the two being art-recognized equivalents, as evidenced by *Ukai*. Claim 57 is therefore unpatentable.

10. Claims 58-60 and 62-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Fujioka et al.,* U.S. Patent No. 6,552,764 in view of *Ichikawa et al.,* U.S. Patent No. 6,339,459.

Fujioka discloses [see Fig. 16] an electro-optical device comprising a first colored layer [106C] and a second colored layer [106A], and a third colored layer [106B], and wherein a light shielding portion [above the TFT on the right] comprises the first and second colored layers.

Fujioka does not explicitly disclose a part of the light shielding portion overlaps with an orientation film in a driving circuit portion. *Ichikawa* discloses [see Fig. 11] an analogous LCD where the driving circuit [peripheral] region is shielded by a light shielding portion [220] overlapped with an orientation film [1110, 1111]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so here, motivated by the desire to light shield the driving circuitry (both protecting them and preventing image defects in the periphery) and to conveniently form an orientation film on the substrate in order to properly orient the liquid crystal molecules. Claim 58 is therefore unpatentable.

The first colored layer is blue, the second red, the third green, so claim 59 is also unpatentable. The light shielding portion is provided under an opposing substrate, so

claim 60 is also unpatentable. The device can be a personal computer including the LCD, so claim 62 is also unpatentable. There is a pixel electrode [202] connected to a TFT formed over the substrate, and said light shielding portion is formed overlapping a channel forming region of the TFT, so claim 63 is also unpatentable. The liquid crystal is between the light shielding portion and the channel forming region, so claim 64 is also unpatentable. The light shielding portion does not include the third colored layer, so claim 65 is also unpatentable.

11. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Fujioka et al.*, U.S. Patent No. 6,552,764 in view of *Ichikawa et al.*, U.S. Patent No. 6,339,459 as applied to claim 63 above, in view of *Ukai et al.*, U.S. Patent No. 5,576,858 as applied above.

Fujioka does not necessarily use a gate-on-top TFT. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so as disclosed by *Ukai*, motivated as discussed above. Claim 66 is therefore unpatentable.

12. Claims 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yokomizu*, Japanese Patent Document No. 10-073813 in view of *Ichikawa et al.*, U.S. Patent No. 6,339,459.

Yokomizu discloses [see Figs. 1 and 2, and consider the 4th black matrix from either left or right in Fig. 1] an electro-optical device having a display portion including a first colored layer [21B], a second colored layer [21R], and a third colored layer [21G], wherein a light shielding portion [21BM] comprises said first colored layer and said second colored layer.

Yokomizu does not explicitly disclose a part of the light shielding portion overlaps with an orientation film in a driving circuit region. *Ichikawa* discloses [see Fig. 11] an analogous LCD where the driving circuit [peripheral] region is shielded by a light shielding portion [220] overlapped with an orientation film [1110, 1111]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so here, motivated by the desire to light shield the driving circuitry (both protecting them and preventing image defects in the periphery) and to conveniently form an orientation film on the substrate in order to properly orient the liquid crystal molecules. Claim 58 is therefore unpatentable.

The first colored layer is blue, the second is red, and the third is green, so claim 59 is also unpatentable. The light shielding portion is provided under an opposing substrate [20], so claim 60 is also unpatentable. The device is a transmission type liquid crystal display device [paragraph 0017] in which a pixel electrode [13] is made of a transparent conductive film [paragraph 0018], so claim 61 is also unpatentable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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20 July 2005